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**INTEGRATED ELECTRIC MOTOR-DRIVEN OIL PUMP FOR  
AUTOMATIC TRANSMISSIONS IN HYBRID APPLICATIONS**

**ABSTRACT OF THE DISCLOSURE**

An electric motor is connected solidly to the main transmission oil pump shaft on the transmission case. An off-axis chain and gear are connected to the main oil pump shaft via a single freewheeling clutch, so that 5 either source of torque in a hybrid motor can drive the oil pump or the oil pump can be driven by the electric motor or the hybrid motor depending on which motor is traveling at a higher speed.